

SP-F16

Draft Phase II Report

Evaluation of Project Effects on Instream Flows and Fish Habitat

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Phase II Process

1. Add transects to Feather River flow study
2. Collect hydraulic data on new transects
3. Merge transects and calibrate all data
4. Review habitat criteria curves
5. Finalize analysis and compute habitat index vs. discharge relationships

1. Add Transects

- Phase I identified potential weaknesses
- Phase II recommendations made
- Field trip conducted and transects added
- 10 Upper Reach, 12 Lower Reach transects
- Phase II study plan prepared

2. Collect hydraulic data

- Upper Reach flow targets:
 - 600, 1000, and 1800 cubic feet per second
- Lower Reach flow targets:
 - 1500, 2750, and 5000 cubic feet per second
- Velocity data using ADCP equipment
- Standard PHABSIM survey methods

3. Merge and calibrate data

- All DWR transects reviewed
- Most discarded transects recovered
- Bottom profiles and side channels rebuilt
- 27 Upper Reach transects
- 29 Lower Reach transects
- All velocity and stage data recalibrated
- Transects assigned new weighting

4. Review HSC

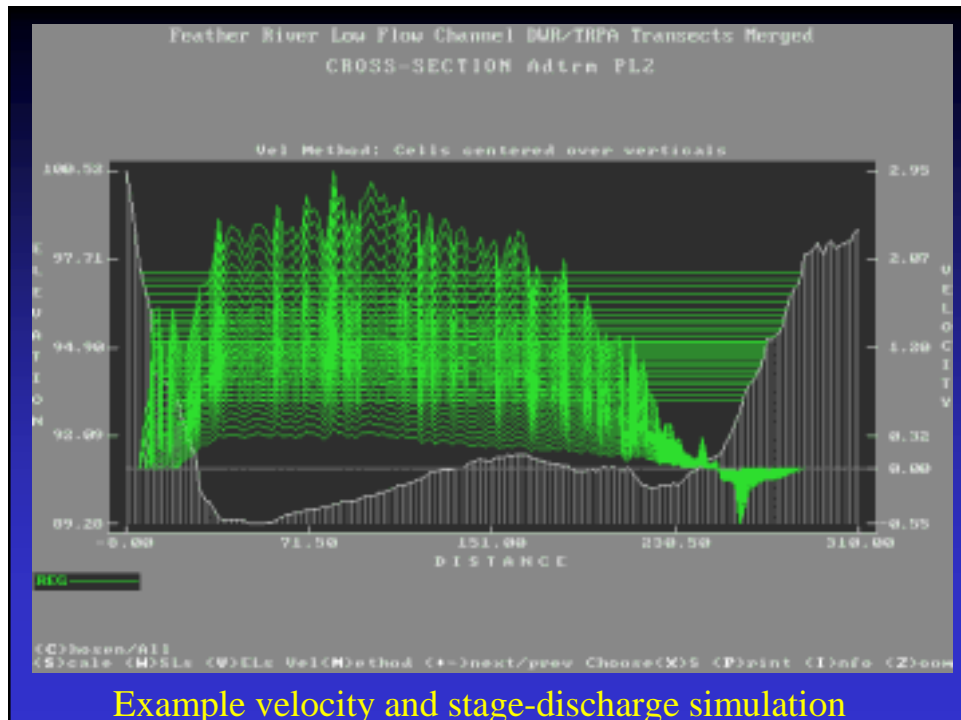
- Chinook adult spawning
- Chinook fry and juvenile rearing
- Steelhead fry and juvenile rearing
- Substrate and cover variables recoded
- Availability considered and included
- Final curves mostly site-specific

5. Finalize Analysis and Compute Relative Suitability Index

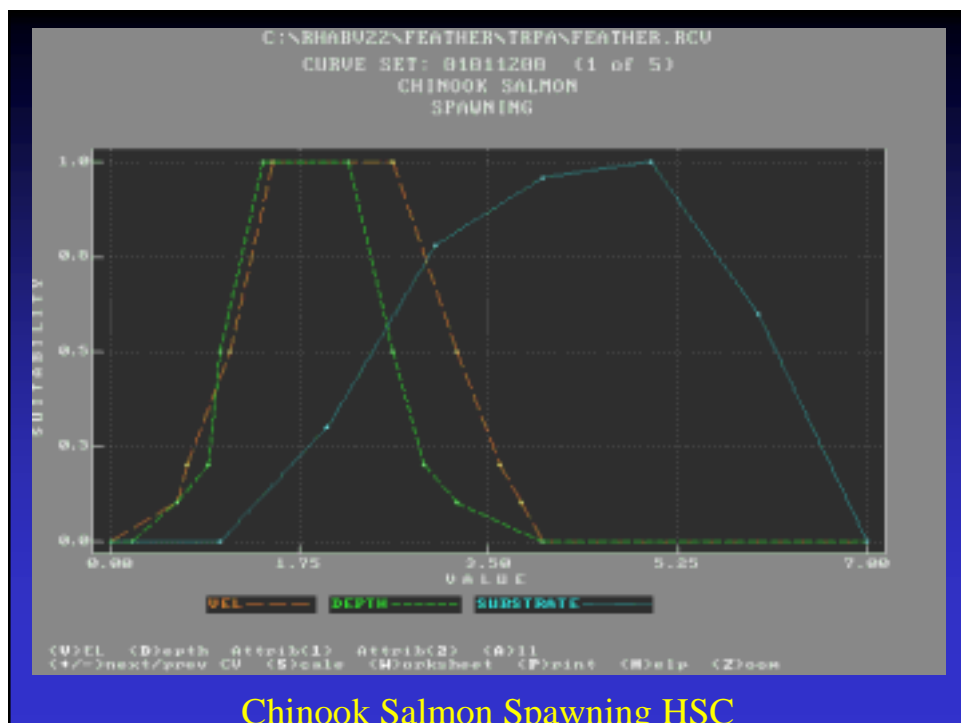
- Consolidated habitat type strata
- Substrate code for spawning
- Cover code for rearing
- Influence of cover/no cover HSC

RESULTS

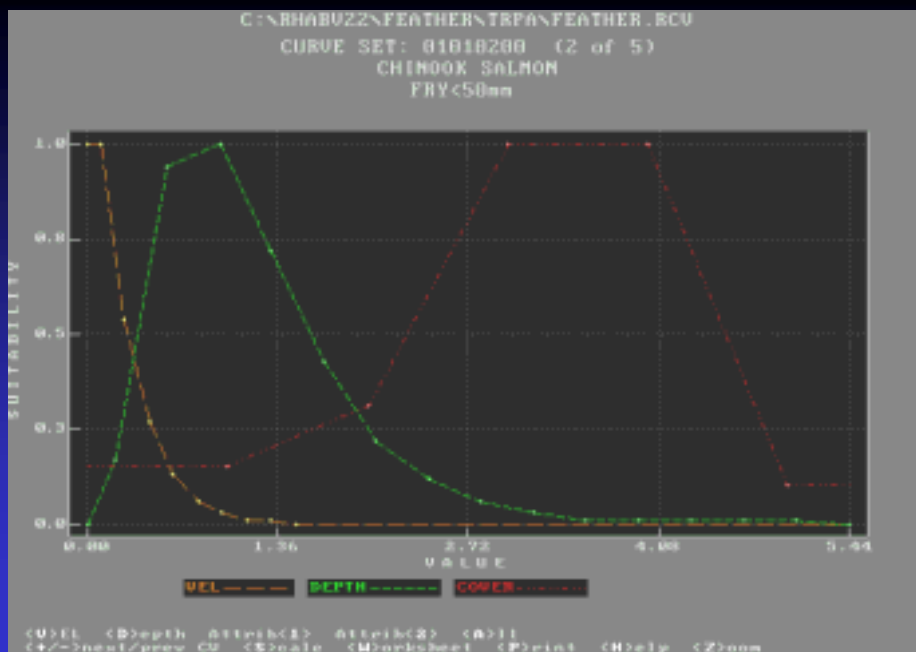
- Hydraulic simulation
- HSC utilized
- RSI for spawning – both reaches
- RSI for rearing – both reaches
 - Chinook fry
 - Chinook juveniles
 - Steelhead fry
 - Steelhead juveniles



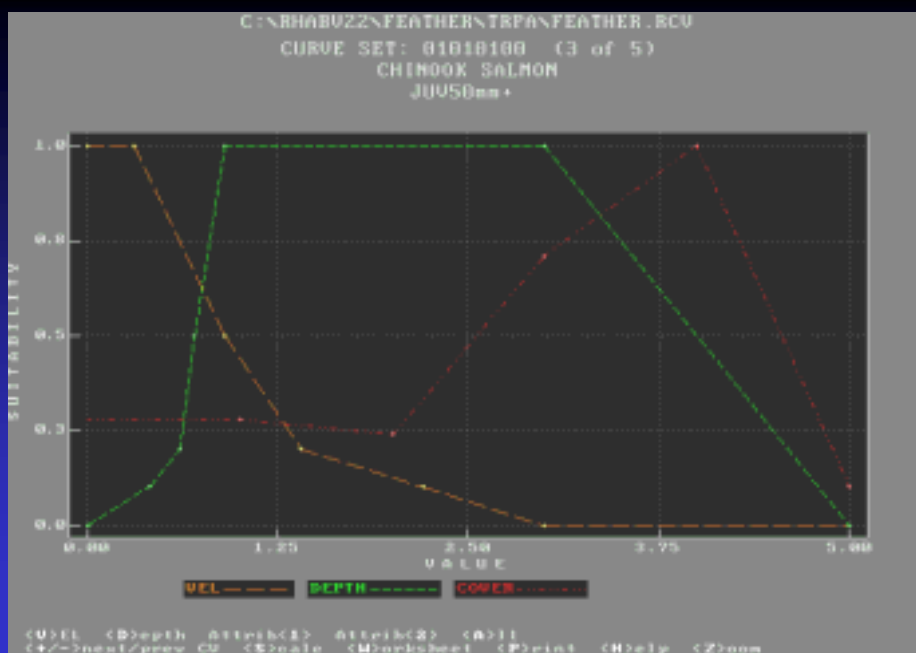
Example velocity and stage-discharge simulation



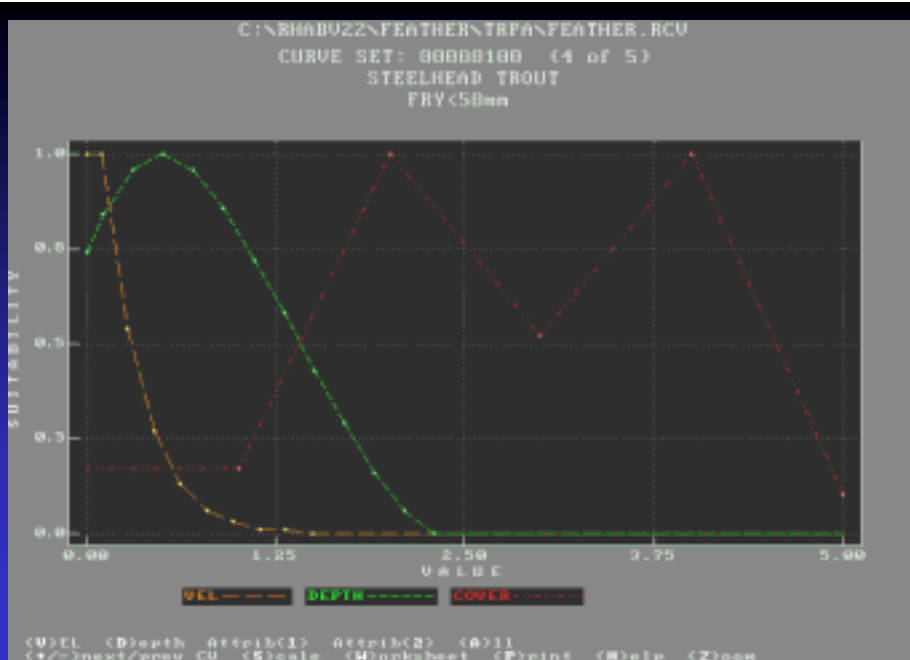
Chinook Salmon Spawning HSC



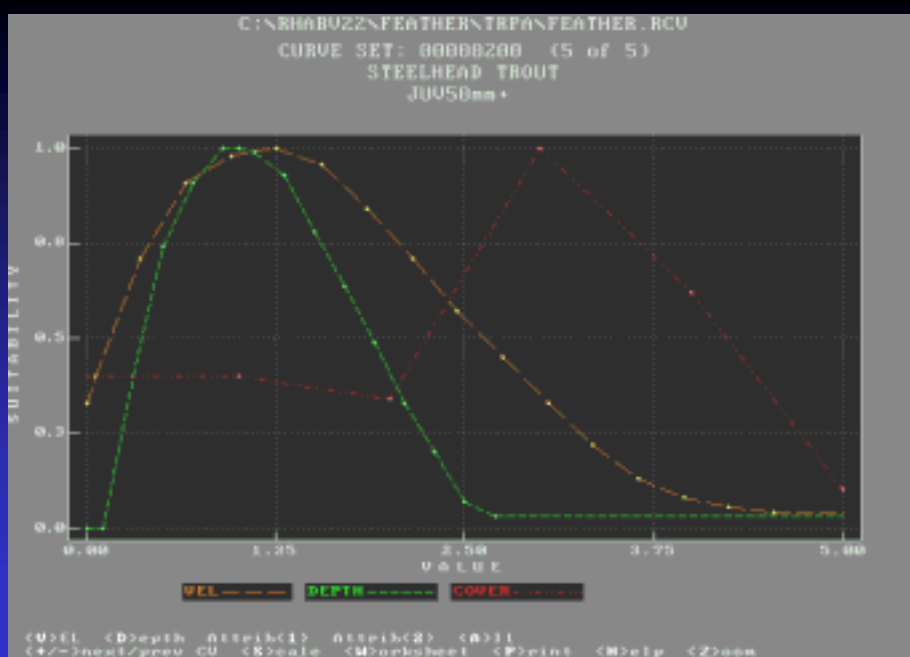
Chinook Salmon Fry HSC



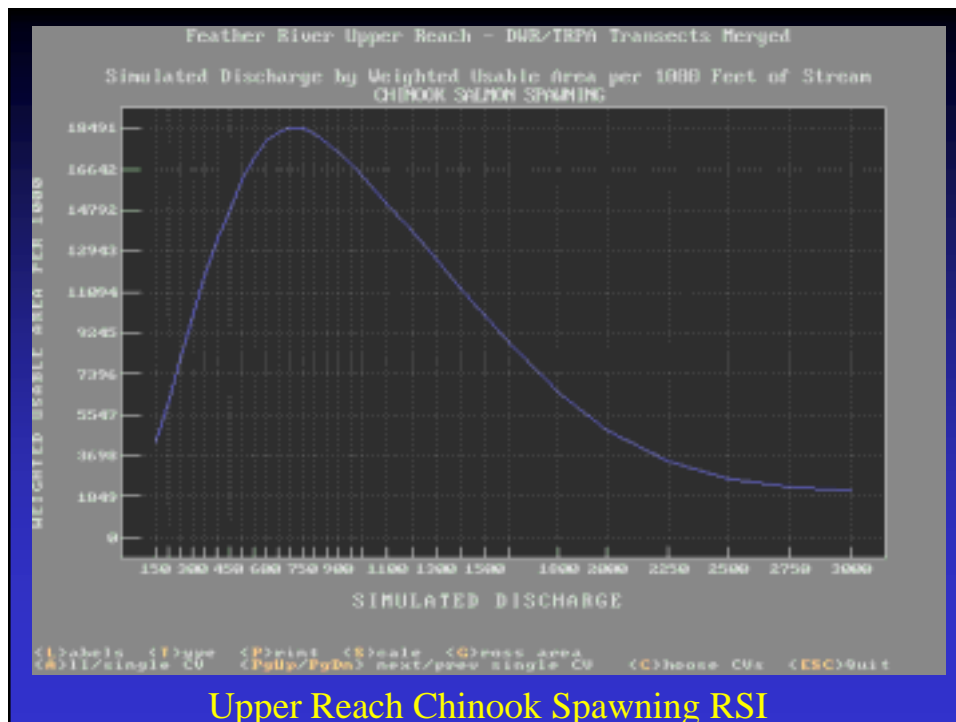
Chinook Salmon Juvenile HSC



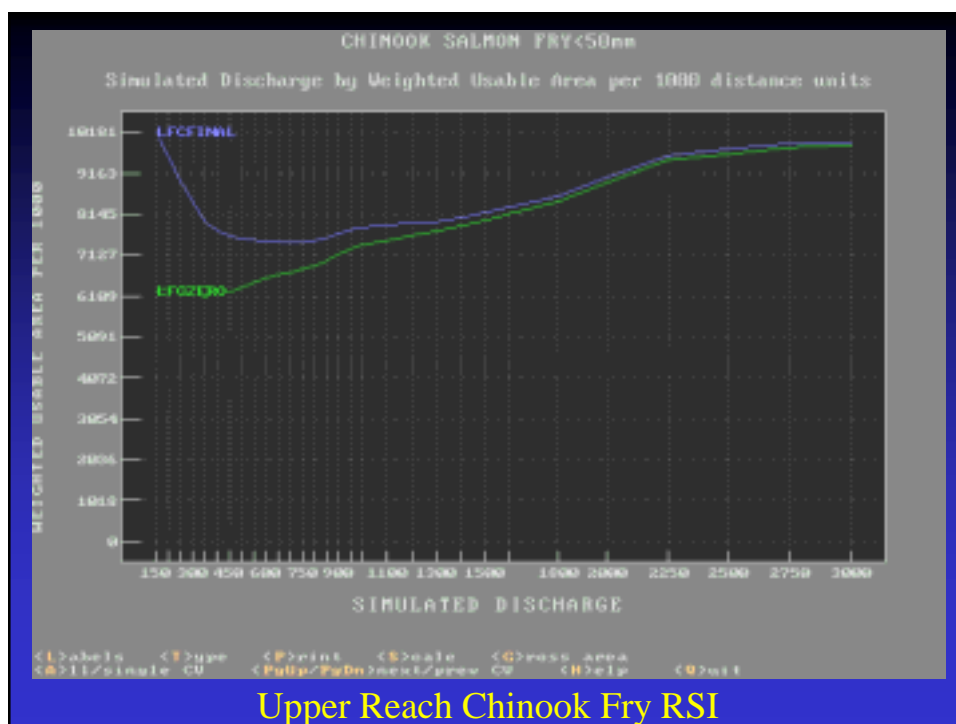
Steelhead Trout Fry HSC



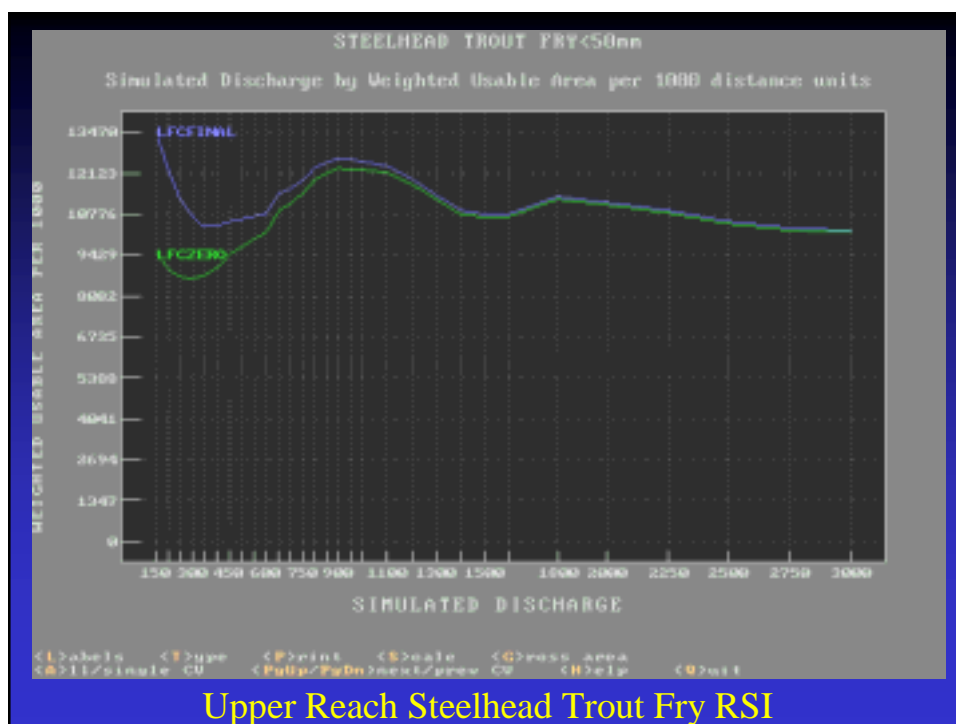
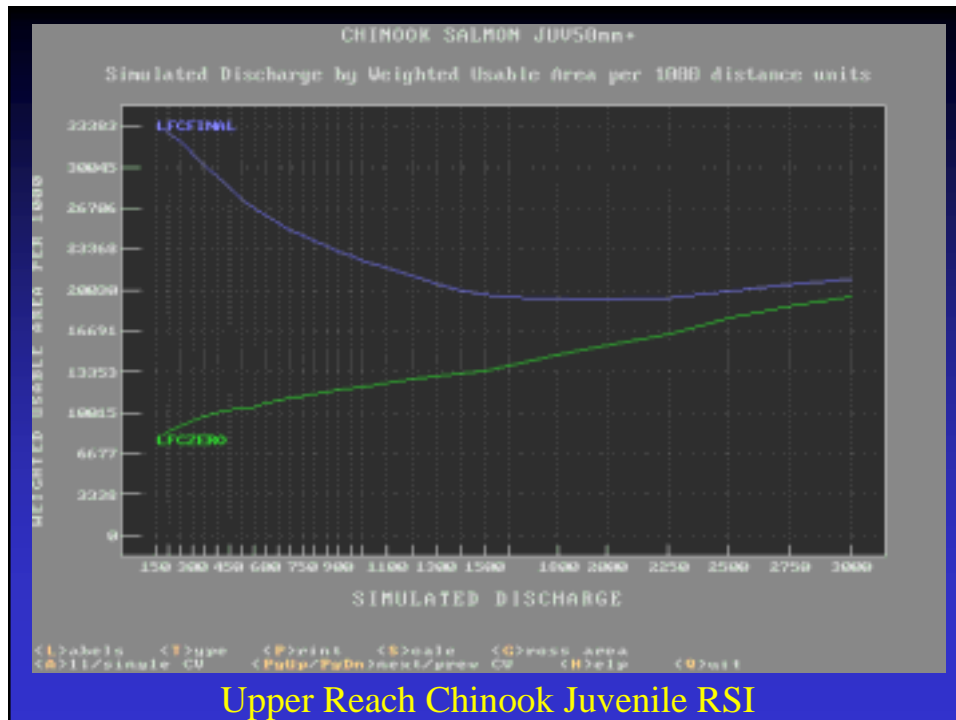
Steelhead Trout Juvenile HSC

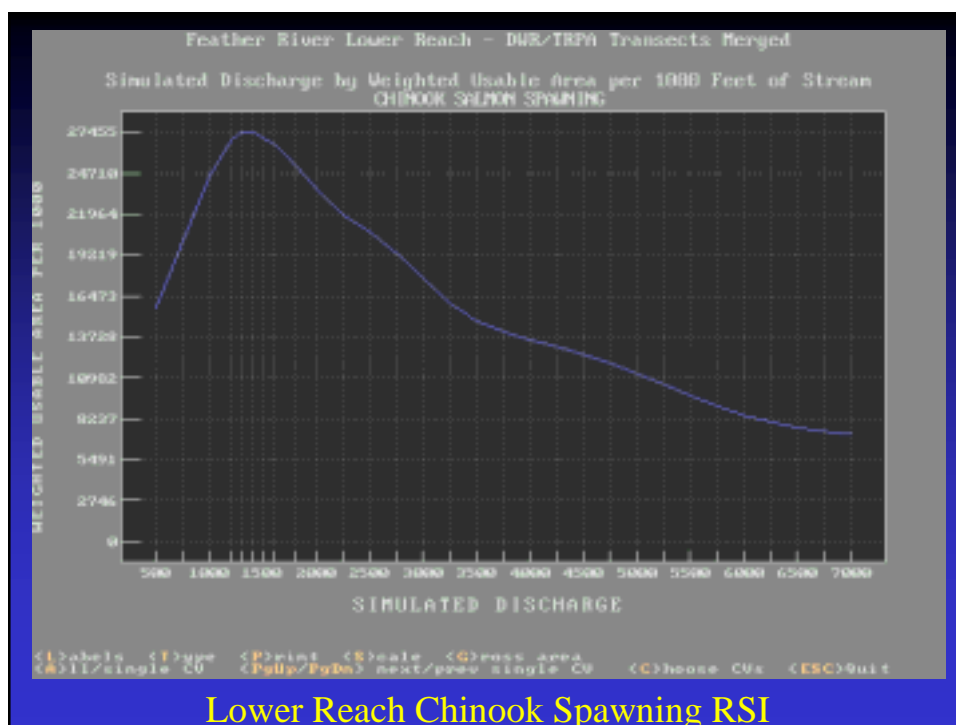
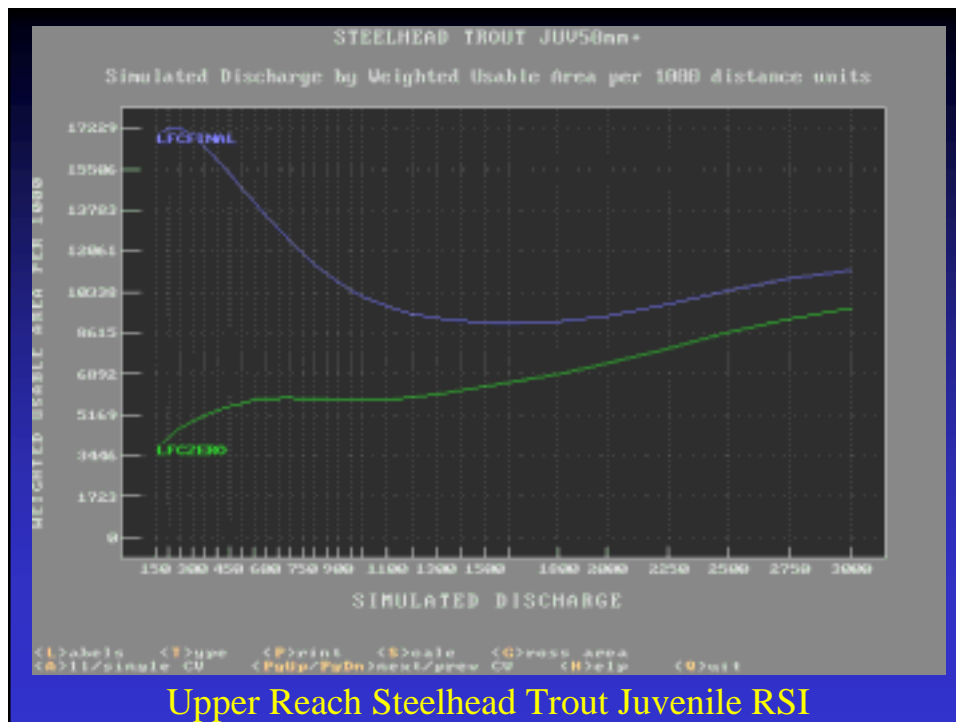


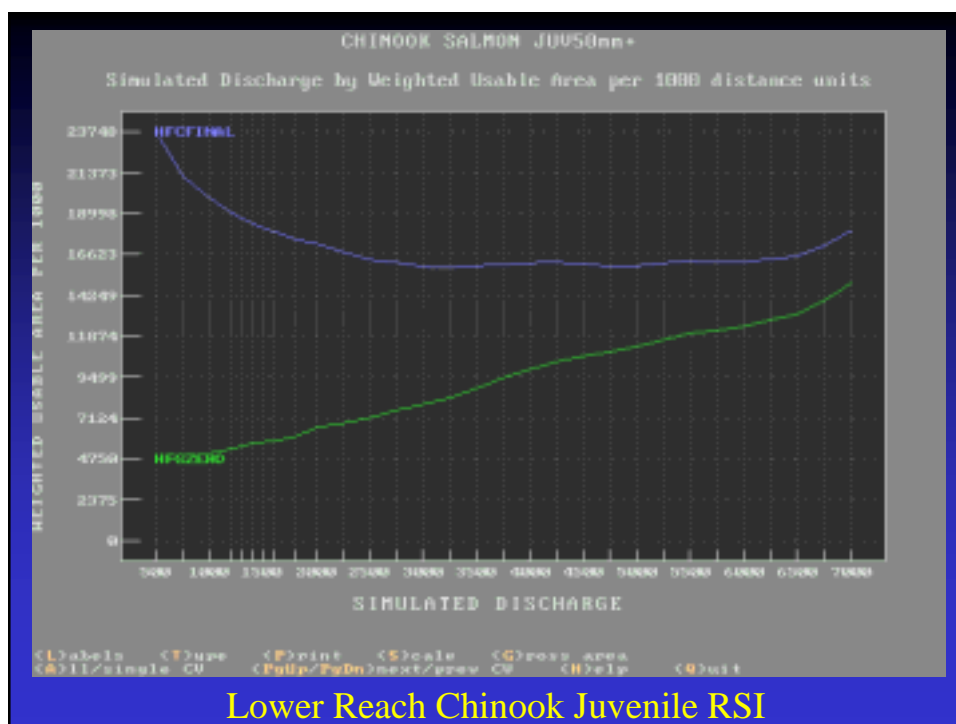
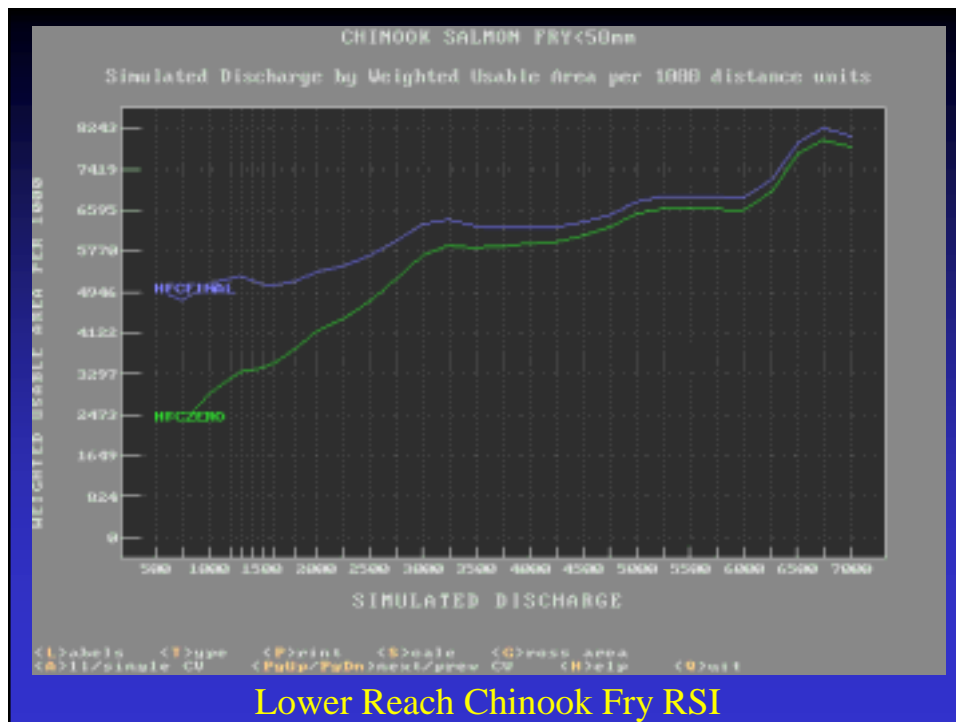
Upper Reach Chinook Spawning RSI

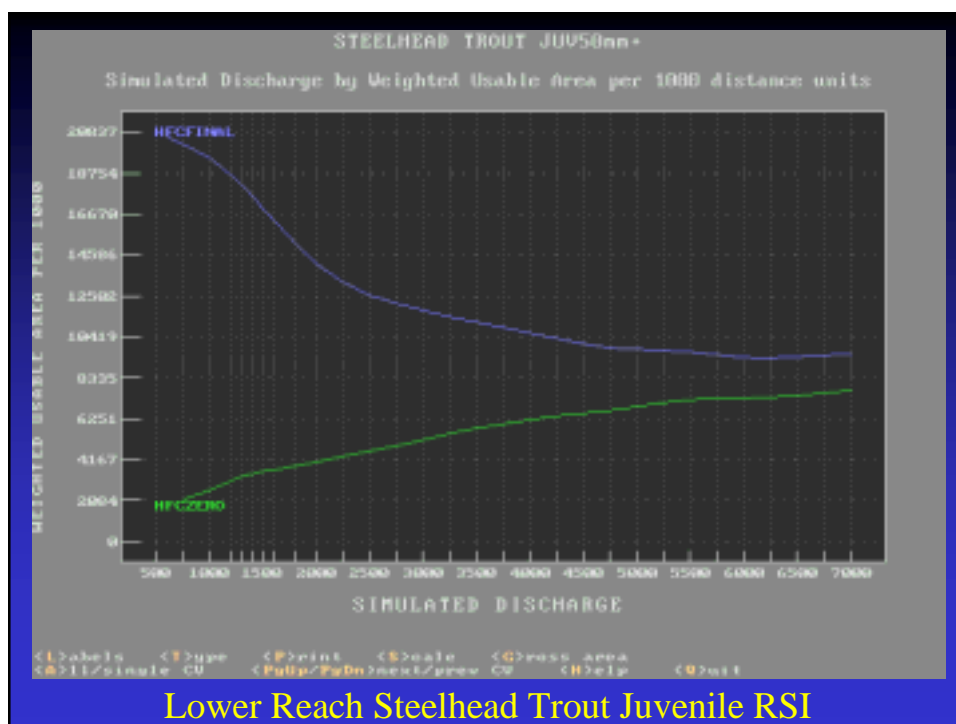
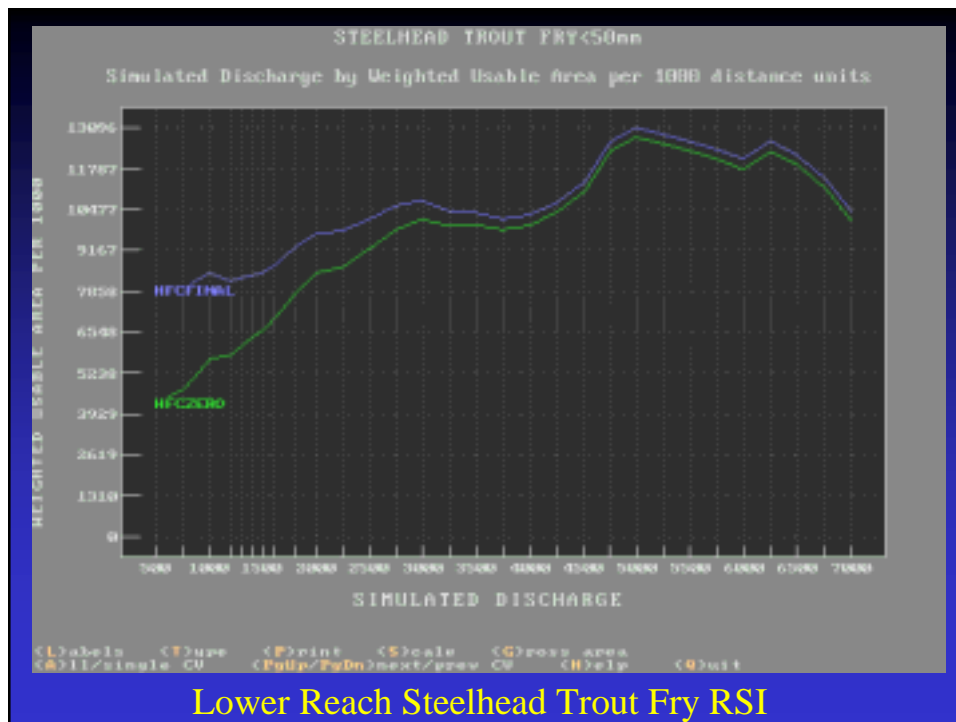


Upper Reach Chinook Fry RSI









Apologies to Sam Watterson

